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ABSTRACT

Literature and model programs are reviewed in an examination of the planning environment for post-secondary technical education in the 1980's. The report first discusses the origins and consequences of four trends affecting vocational education: the growing demand for part-time, adult continuing education; increased demands for accountability; the exhaustibility of resources; and changes in the workplace creating worker dissatisfaction, labor underutilization, and increased investment in research and development. A planning process designed to keep technical education viable in light of these forces is then presented, incorporating: (1) the establishment of protocol and planning structures; (2) methods of reaching consensus on the proper role of the college in society; (3) methods of specifying planning goals; (4) program development techniques to achieve these goals; and (5) a personnel development component which takes into account the various stages of individual development and helps faculty adjust to non-traditional students and teaching methods. Next, the leadership roles which colleges and professional associations can play are examined in terms of setting national educational policy, educating legislators, and achieving public credibility. (JP)

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PLANNING TECHNICAL EDUCATION FOR THE EIGHTIES

by

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PLANNING TECHNICAL EDUCATION FOR THE EIGHTIES

OUTLINE

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A. Postsecondary education is "of society."

B. Selected forces, trends, effects, reactions, and impacts

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2. Accountability
3. Finate resources
4. Changes in the workplace
5. Rights movement

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E. Leadership development

As I began to develop the outline of this presentation, I was reminded of the story of the Chinaman asking his son, "Do you know who pushed our outhouse into the Yangtze River?" His son replied, "No." Again he asked his son, "Do you know who pushed the outhouse into the Yangtze River?" Again his son replied, "No." The Chinaman then told his son the story of George Washington cutting down the cherry tree and how his father did not spank him because George told the truth. At the conclusion of the story, the Chinaman again asked his son, "Do you know who pushed the outhouse into the Yangtze River?" This time the son replied, "I cannot tell a lie father, I did it." The Chinaman immediately spanked his son. The son was confused and asked his father why he was spanked for telling the truth and George Washington was not. The Chinaman simply stated that George Washington's father wasn't sitting in the cherry tree when George cut it down. The principle that is involved in this story is simply - "Where you stand is where you sit."

From where I sit, it seemed logical to build the outline of this presentation around three limited but achieveable objectives.

1. To analyze the <u>context or environment</u> in which technical education takes place.
2. To examine the <u>planning function</u> as it relates to keeping technical education viable in the years ahead.
3. To discuss the challenge of providing <u>leadership</u> for technical education for the 1980's.

In the Fall of 1968, John W. Gardner, former secretary of Health, Education and Welfare, strode to the podium at the annual meeting of the American Council on Education and launched a double-barrelled assault on higher education for its lack of initiative in dealing with problems of urban life. He declared, "The colleges and universities of this country have not responded impressively to the urban crisis. They have been notably laggard... very few have pursued any aspect of the urban crisis with the intellectual rigor it requires. Even fewer have accepted the real world of the city on their doorstep as a laboratory in which they can advance their intellectual pursuits."

Institutions of postsecondary education are "of society." That is to say, they are created to fill a role that society has deemed necessary as it related to its well being. Viewed in this light, postsecondary education takes its place alongside elementary and secondary education, government, housing, transportation, and human services as it attempts to impact on the quality of life. Postsecondary education at one time stood as the giant oak as the primary source of knowledge/information generation and transmission. Postsecondary education had exclusive right on a monopoly. Since an early study published in 1961 by the American Council on Education, business and industry has become involved in education and training in a big way.[1] An article in the October 1978 issue of the American Association of Higher Education Bulletin begins as follows:[2]

> An extensive education and training system exists in private industry and government. The National Conference Board, for example, reports that in the single recession year of 1975 the nation's 7,500 largest private employers spent over $2 billion on employee education--as much as the recent annual totals of all contributions from all sources to colleges and universities. And while college and university-based education is stabilizing and/or declining, the training and development sector in business, industry, and government is expanding rapidly.
>
> Several years ago Kenneth Boulding gave us a warning by drawing an analogy between higher education and that other industry in decline--the railroads. The problem, he said, was that railroad managers did not view themselves as part of a larger transportation system, but simply as manager of an isolated segment, the railroads.

An article in The New York Times begins as follows:[3]

> Last year the American Telephone and Telegraph company spent $700 million on education programs for its employees, or more than three times the $213 million annual budget of the Massachusetts Institute of Technology.
>
> Sixteen courses run by McGraw-Hill for its employees have been approved for college credit by the New York State Department of Education. At Honeywell, Inc., in Minneapolis more than 3,500 employees enrolled this year in 183 courses ranging from solar heating and cooling to women in business.

The point that John Gardner was making is that if postsecondary education is truly doing its job, it has an impact on virtually every institution of society. If postsecondary education is to remain viable in the years ahead, it must be cognizant of societal forces, trends, and effects as they occur in the college context and service environment. Because our college environments are different, the analysis which follows is general. Nor is it an exhaustive analysis. Rather, the analysis contains a few select examples which are illustrative of a broad range of forces, trends, and effects which intrude upon the policy-making and resource allocation functions of postsecondary education at the federal, state, and institutional levels.

SELECTED FORCES, TRENDS, AND EFFECTS

FORCES	TRENDS	EFFECTS, REACTIONS, IMPACTS
Revolution in Education	Quantity to Equality to Quality	Professional Development Programs Centers for Instructional Development Program Shifts to Accommodate "New Learners"
	Equal Access	Shift to Performance-based and Competency-based Program Formats
	Lifelong Learning	Open Learning Systems
Accountability	Federal Legislation Government Regulations Consumer Representation	Loss of Public Confidence in Well Established Institutions Shift in Distribution of Power for People and Institutions Shift in Types of Services and How They are Delivered Voluntary Coordination to Involuntary Coordination Vocational Educational Data Systems (VEDS)
Finite Resources	Evolution of Systems Evolution of Planning Management Techniques	Consortia and Regional Cooperative Relations Attempt at Specifying Functional Relationships Tools - Management By Objectives (MBO) Planning, Programming, Budgeting System (PPBS) Planning, Management, Evaluation System EDUCOM Financial Planning Model (EFPM) Higher Education Management Information (HEMI)
Change in Workplace	Worker Dissatisfaction Productivity Worker Underutilization Investment in R & D	Emphasis on Self-responsibility, Nutritional Awareness, Physical Fitness, Stress Management, Environmental Awareness Concern for Organizational Climate Programs on Holistic Health and Health Promotion 40 Million Americans Pursue a Career Transition Growth of Business in Education and Training
Rights Movement	Increased Rights Health Care Equality Economic Security	Consumer Rights; Human Rights; Civil, Women's, and Gay Rights Equal Access to Quality Health Care at Reasonable Cost Right to Work, Deinstitutionalization and Rights to Rehabilitation

The first force is the educational revolution. Francis Keppel, former United States Assistant Secretary of Health, Education and Welfare, talks about The Necessary Revolution in American Education. He states,

> The first revolution in American education was a revolution in quantity. Everyone was to be provided the chance for an education of some sort. That revolution is almost won in the schools, and is on its way in higher education. The second revolution is equality in opportunity. That revolution is under way. The next turn of the wheel must be a revolution in quality.[4]

John D. Rockerfeller III, Chairman of the Commission on Population Growth, calls for a revolution in a slightly different way. Rockerfeller's premise is that The Second American Revolution[5] seeks to establish a person-centered society to promote humanity and idealism in all Americans. In his synthesis - termed the "Humanistic Revolution" - Rockerfeller offers prescriptions to create new structures and restructuring existing institutions to plan and effectuate humanistic goals. In Accent on Learning, K. Patricia Cross suggests the revolition is from "educational opportunity for all" to "educational opportunity for each."[6]

Willard Wirtz indicates that we are in a revolution which is linking more closely the world of work with the world of education, a process of integrating the "learning to do" system with the "doing to learn" system.[7]

This aggregate force is producing a series of trends with regard to equal access and lifelong learning. These trends, in turn, have produced a variety of effects or reactions such as professional development programs and centers for instructional development. In a recent study it was noted that more than 80 instructional improvement centers have been developed in colleges and universities during

this last decade.[8] If we conceive of formal education as a lifelong process and recognize that part-time adult continuing education and open-learning systems (including open entry, career ladder, and open exit options) are the order of the day, then we have to develop our educational programs within that frame of reference.

A second major force is accountability. This elusive force has caused some persons to refer to our time as "The Age of Product Liability" or "The Age of Truth in Packaging." This aggregate force is producing several trends in federal legislation, government regulations and consumer representation in an effort to make higher education more responsive to unmet societal needs. While it is not altogether clear whether the first item listed under reactions is cause or effect, there has been a significant change in public confidence in well established functions. This alarming lack of faith in a wide variety of American institutions is displayed in the General Social Survey made by the National Opinion Research Center in September 1975. A critical analysis of this report suggests that the greatest loss of confidence occurred in organized religion and education.

Other effects the accountability force is having upon our institutions include major shifts in power among people and institutions. H.E.W. officials estimate at least 40 packages of regulations were needed to carry out the Education Amendments of 1976 alone.[9] The Vocational Educational Data Systems (VEDS) is but one example. Boston Children's Hospital president Leonard Cronkhite painted a gloomy picture of American medicine increasingly menaced and strangled by the burgeoning tentacles of a runaway federal bureaucracy gone mad, as he stepped down as chairman of the Association of American Medical

Colleges during the association's annual meeting in 1976. Cronkhite asserted, "Big government has erected an enormous bureaucratic structure which in terms of its growth rate and invasiveness, has many of the characteristics of a malignancy. It devours major assets under the banner of frugality. It is ambiguous and unwieldly. It appears uncontrollable and has become a fourth branch of government with far more autonomy than the other three. Most importantly, it has failed miserably in the control of costs."[10]

Another force is the realization of finite resources. In higher education the signs of this force include the number of persons seeking a postsecondary education experience, the practical limits of tuition increases, and the inflationary nature of our labor-intensive industry. Because, in part, of finite resources, postsecondary education has begun to show concern for planning and management techniques for the more efficient and effective operation of the corporate enterprise. This has resulted in the evolution of systems in postsecondary education and an emphasis on consortia and regional approaches. A comparative study of 37 regional plans in 24 states is presented in a monograph entitled Regionalism and Statewide Coordination of Postsecondary Education.[11]

Another trend that has resulted from this force is a beginning definition of term planning. In the health care arena, the Hospital Survey and Construction Act of 1946, was one of the first major efforts to bring a rational and systematic planning focus to health delivery system. For the past thirty years there has been continual planning refinement in the federal legislation relative to health care and education. The "Health Planning and Resource Development Act of 1964" (P.L. 93-641 and P.L. 96-79) charges Health Systems Agencies to deal with issues they are unlikely to have success with unless they

associate with academic health science centers, however, that concept is defined. The "Health Professions Educational Assistance Act of 1976" (P.L. 94-484) outlines broad areas of responsibility for the health professions that institutions of higher education are unlikely to have great success with unless they coordinate with a wide range of agencies. The functional relationships are not clearly defined at the present time and their development will be a slow process of evolution.

Changes in the workplace and trends in worker dissatisfaction,[12] productivity,[13] worker underutilization,[14] and investment in research and development[15] are worthy of our analysis, as is a discussion of the rights movement. Time will not permit a critical analysis of all the issues and problems which will intrude upon us in the eighties. The intent of this first section is to provide a conceptual framework for examining major changes and shifts in the larger societal context or environment and, from that analysis, state implications for the planning function and for technical education in the eighties.

What, then, are some of the implications of the learning society for the planning function in general and for technical education in particular. As I began to work on the second part of the paper, I was reminded of the forecasts of several persons:[16]

> In 1926, the man whose invention ultimately led to the development of the TV tube said: "...commercially and financially I consider (television) an impossibility, a development of which we need waste little time dreaming."
>
> And in 1945, a famous American naval officer said: "That is the biggest fool thing we've ever done...the (atomic) bomb will never go off, and I speak as an expert on explosives."
>
> And in 1948, a respected science magazine said: "Landing and moving around the moon offers so many serious problems for human beings that it may take science another two hundred years to lick them."

The difficulty of predicting the outcome of an event with some

degree of accuracy is somewhat different from an analysis in retrospect as can be seen in the 1976 statement by Paul Lyet, President of Sperry Rand. He said, "If aviation had evolved at the speed computers have, Neil Armstrong would have walked on the moon less than a year after the Wright brothers took off from Kitty Hawk."

What is described in the paragraphs which follow is a planning process for keeping tecimical education viable in the eighties. It is a model designed to obtain input from a wide range of sources. The description of the planning process attempts to deal with the structural component and the personal development component. The model can be generalized to the diversity of the 1,234 two-year colleges in this nation.[17] The material covers (1) the rapid rate of change and need for planning; (2) stages of organization development; (3) stages of sophistication in planning; (4) structured components of the planning process including protocol and structure, assumptions about the external and internal environment, goal specification, and program development; and (5) the personnel development component.

The rapid rate of change was stated by Alfred North Whitehead in 1930 as follows:[18]

> The pace of change is accelerating at such a rate that a number of major cultural revolutions will from here on take place during a single lifetime. And under this condition, it is no longer functional to define the purpose of education as the transmission of the culture. Its purpose now must be to produce lifelong learners.

Buckminster Fuller has stated, "Because of the acceleration of our technological development, the next ten years will be equivalent to the last five million."[19] Dean Rusk has stated, "The pace of events is moving so fast that unless we can find some way to keep our sights on tomorrow, we cannot expect to be in touch with today."[20] Anthropologist Bernard G. Campbell described change in the following

question, "How could a being who was a hunter-gatherer a few million years ago suddenly find itself capable of going to the moon."[21]

Edward Cornish provides some perceptions on how to cope with rapid change:[22]

1. The future is not fixed, but consists of a variety of alternatives among which we can choose those we want to realize.
2. Choice is necessary. Refusing to choose is itself a choice.
3. Small changes through time can become major changes.
4. The future world will probably be drastically different in many respects from the present world.
5. People are responsible for their future; the future doesn't just happen to them.
6. Methods successful in the past may not work in the future due to changed circumstances.

Emphasis on broad-based strategic and tactical system-wide and institutional planning is largely a phenomenon of the seventies.[23] The intrusion of a wide range of forces such as the revolution in education, increased accountability, finite resources, change in the workplace, and the rights movement have provided the impetus for this phenomenon. The value placed on planning varies inversely with the availability of resources.[24] If it takes more resources to operate the college than is available, than a more efficient and effective method of management must be developed and implemented. The reasons to plan then are as follows:

1. To make the organization more responsive to community/societal needs.
2. To provide a means for setting goals and objectives to which purposeful human activity can be linked.
3. To bring rationality and equity to the resource allocation decision making process of relating people, dollars, and time to goals and objectives.

4. To improve management efficiency and effectiveness.

5. To reduce risk in selected areas and functions within the organization.

6. To demonstrate accountability to sponsors - taxpayers, students, and clients.

7. To allow for measurement of progress toward goals and objectives and an assessment of outcomes in terms of

   (a) output from the organization and
   (b) impact on community/societal needs

Organizations pass through various stages of growth and development. These stages have been characterized as (1) emergence, (2) growth, (3) maturity, (4) regeneration, and (5) decline.[25] It is becoming increasing clear that the strategies an organization uses are influenced by its position in a development sequence. There is a paucity of citations in the literature dealing with higher education management development. This is due, possibly, to the dissimilarity between higher education management and business management.[26] It would seem logical, however, that the managerial style best suited to the current environment is also a function, in part, of the stage of organizational development. Theories of organizational functioning and human effectiveness were reviewed to produce the Management Development and Training Program for Colleges and Universities, a program endorsed by the American Association of Community and Junior Colleges (AACJC).[27] Although time will not permit a detailed discussion about stages of organizational development and managerial style, suffice it to say that both elements have a bearing upon the planning function.

The evolution of planning is worthy of some comment. William A. Shoemaker, former Vice President for Research for the Council for the Advancement of Small Colleges, developed a list of "College Personnel Attitudes and Planning Practices" as a result of extensive involvement

COLLEGE PERSONNEL ATTITUDES AND PLANNING PRACTICES

1. ☐ Status-Quo - things are fine the way they are: the college, the programs, the teaching, the environment.

2. ☐ Incrementalism - we only have to do more or less of the same things.

3. ☐ Budgeting is Planning - analysis of budget in intricate detail and some selective incrementalism.

4. ☐ Anticipating Next Year's Crisis - some "pruning" of branches as awareness of selective resource allocation develops.

5. ☐ Multi-Year Fiscal Planning - 2 to 20 year budgets that attempt to match income and expenditures.

6. ☐ Single-Source Planning - done by the aggressive (or) intelligent (or) ambitious president, dean, or business manager. The "plan" is usually in his or her head.

7. ☐ Oligarchy Planning - the President's Cabinet, perhaps including token faculty and students, try to "look ahead" for the institution.

8. ☐ Institutional Research - the ad hoc collection of new analytic and planning information to make planning a little more rational.

9. ☐ Department Analysis - the development of some isolated academic and support department unit costs and productivity measures.

10. ☐ Comparative Data - moving from intra-institutional analysis to inter-institutional comparisons to "red flag" areas requiring further analysis.

11. ☐ Inter-Departmental Systems - recognition of the interdependence of departmental functions (e.g., admissions, programs, attrition).

12. ☐ Comprehensive and Comparative Data - hard and soft information available on each critical area and function, and comparative wherever possible.

13. ☐ Program Objective Concept - departmental accountability for department and institutional goal attainment, resource use, and productivity.

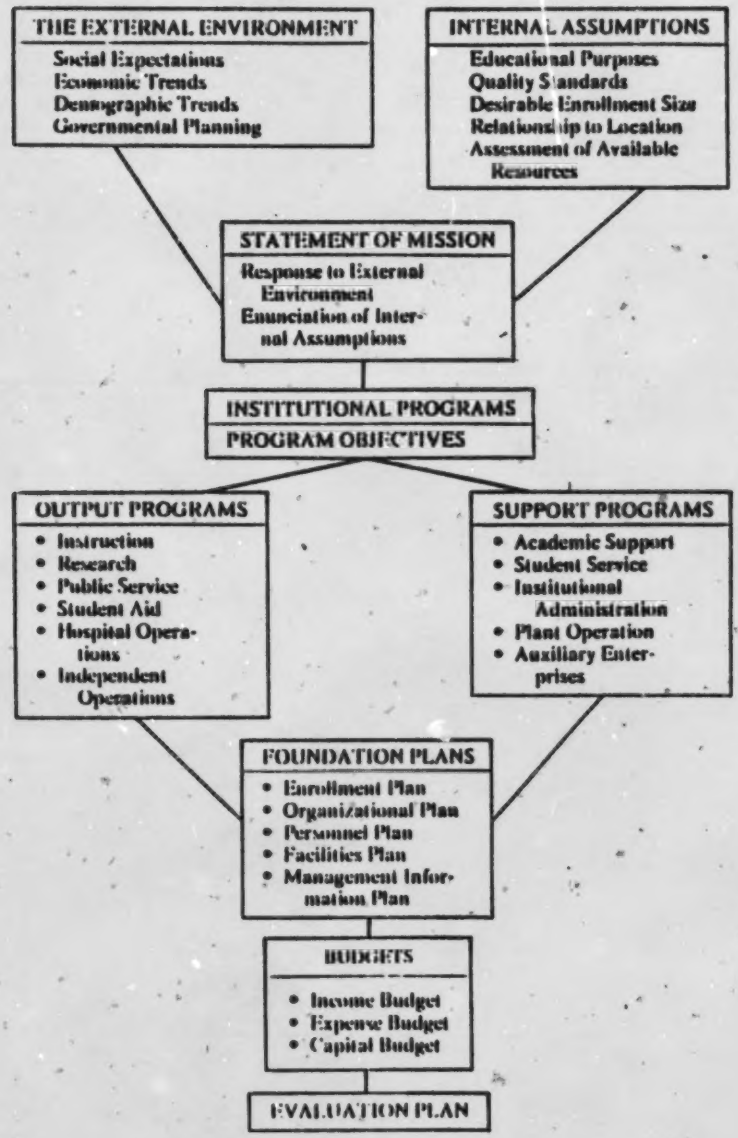
14. ☐ Systematic and Informed Collegial Model - broad participation in organized departmental and institutional planning process producing multi-year (5-year) budget that is reviewed annually.

William A. Shoemaker
CASC Vice President for Research
September, 1977

in an Institutional Research and Planning Project (1972-75) and the Planning and Data System Project (1975-79). His list begins with status quo and incrementalism attitudes, moves through multi-year fiscal planning and institutional research practices, and extends to the systematic and informed collegial model. A program conducted by John D. Millett, Executive Vice President for the Academy for Educational Development, is an elaboration of the systematic and informed collegial model. During the three calendar years 1976 through 1978, AED undertook a project to assist selected colleges and universities in the management of change.[28] The model calls for specification of external environmental assumptions such as (1) social expectations, (2) economic trends, (3) demographic trends, and (4) governmental planning as well as the specification of internal assumptions relating to (1) educational purposes, (2) quality standards, (3) desirable enrollment size, (4) relationship to location, and (5) assessment of available resources. From these two sets of assumptions are derived the statement of mission, goals and objectives for output and support programs, foundation plans, budgets, and the evaluation plan.

Although the planning process has numerous components, this disucssion will emphasize (1) planning protocol and structure, (2) planning assumptions, (3) goal specification, and (4) program development. First, there is a planning protocol. Some person(s) at an institution have responsibility for planning various aspects of the institution and they will follow some procedure in doing whatever it is they will do. How they do whatever they do should follow an agreed-upon set of steps. Next, there is the need to develop a planning structure. Most institutions have some sort of structure for coordinating the ongoing activities of the institution. The structure may be quite simple, with a minimum number of persons

THE PLANNING PROCESS IN HIGHER EDUCATION



participating in the decision-making process, or it may be quite complex involving a number of review committees and several levels of review boards. Regardless of complexity, there must be some structure for planning.

Second, there must be some way for stating and achieving concensus by appropriate groups on external and internal assumptions about the institution. A project by the American Association of State Colleges and Universities uses societal trends and societal values as a way of planning futures and bringing planning assumptions into focus. The project uses a cross-influence matrix of 12 societal trends and 12 values to determine goals in 10 areas. The 12 societal trends are population, government, global affairs, environment, energy, economy, science and technology, human settlements, work, life style, women and participation. The 12 societal values are change, freedom, equality, leisure, foresight, pluralism, localism, responsibility, knowledge, quality, goals, and interdependence. The 10 goal areas are finance, students, research and development, public service, facilities, faculty, curricula, administration, resources, and athletics.[29]

Several institutions have made excellent progress with the Futures Creating Paradigm including Indiana State University, Indiana University of Pennsylvania, the University of Maine at Farmington, Boston State College, and Valley City State College. Two other models worthy of examination include the University of Wisconsin and West Virginia University. Wisconsin is a state-wide model with the coordinating unit and individual campuses participating in specifying assumptions. The West Virginia University model includes assumptions and objectives.[30]

North Central Technical College reviewed a number of planning

models. The College defined the term "assumption" and generated a list of categories for arraying assumptions. The definition of assumption is as follows:

> An assumption is a proposition describing future conditions, some of which the institution has little control over. The level of certainty assigned to an assumption determines the level of precision it is allowed in subsequent planning. The greater the uncertainty about the assumption the greater must be the range of flexibility/ hedging/options the institution retains against the non-assumed condition. Raising the certainty level of an assumption yields greater planning precision, better long term goal effectiveness and improved cost efficiency and program effectiveness. A planning assumption proposition can be internal to the institution or external to it. One criterion which is used in making a decision about inclusion or exclusion of a specific proposition at the institutional or cost center levels rests on whether or not the assumption has a direct bearing on setting goals and objectives at that level.

The list of categories for stating assumptions is as follows:

1. Assumptions about the societal context within which NCTC exists
2. Assumptions about external agencies
3. Assumptions about institutional leadership/management
4. Assumptions about NCTC programs (existing and potential)
5. Assumptions about ptoential clients and enrollment
6. Assumptions about student services
7. Assumptions about staffing and professional development
8. Assumptions about physical plant
9. Assumptions about equipment.
10. Assumptions about fiscal resources

Planning assumptions about the societal context in which an institution exists can focus on such issues of health, energy, transportation, lifelong training, quality of worklife, leisure, creden-

tializing such as licensure and certification and program and institutional accreditation. Planning assumptions about external agencies can focus on the relationship between an institution and state and local governance, higher education as a system, articulation, and communication. Planning assumptions about existing and potential programs include new credit and non-credit programs growing out of needs analysis or market segmentation studies, use of advisory committees, and instructional development and support.

Selected examples of assumptions are as follows:

It is assumed that equal educational opportunity as a right of all persons will be a dominant theme of federal and state legislation in the years ahead. This will mandate a focus on "packaging" higher education programs as we shift from the 20th century goal of "education for all" to the 21st century goals of "education for each." It will necessitate careful attention to remedial education, programs to overcome academic deficiencies as well as developmental education, programs to develop the diverse talents of students.

We have moved from an era of thinking about education as something given in the early years of youth and lasting throughout life to thinking about education as occurring throughout a life span. It is assumed this trend will continue as an increasing number of Americans anticipate job or career changes states mandate continuing professional education, and lifetime learning is viewed as a basic social right as well as an economic necessity.

The United States is likely to retain an unchallengeable competitive advantage only in products and techniques that are at the very fore front of technological development or that require a hugh integrated market for their creation.

It is assumed the process by which policy decisions are made will undergo agonizing changes with the erosion of institutional autonomy and a gradual shift of authority to state and regional coordinating agencies, and legislative bodies. This action will be accompanied by lobbying activities.

It is assumed that the procedure for measuring educational accomplishments will change in dramatic ways. The system of amassing largely time-related academic units to reach the required total for a degree will yield to different output measures related to levels of competency in reference to designated bodies of knowledge and sets of skills.

Sources of trends and assumptions are numerous. In 1967, the Institute of Life Insurance conducted a Future Outlook Study to assess significant social and political trends because it seemed clear that reactive styles were not appropriate in times of rapid change. One result of the Future Outlook Study was a call for an ongoing mechanism to be established by which the business could keep abreast of emerging ideas and social changes that might affect its operating environment. In 1970, an early-warning system called the Trend Analysis Program (TAP) was designed and put into place. TAP continues to operate as a program of the American Council of Life Insurance, formed in 1976 by a merger of the Institute of Life Insurance and the American Life Insurance Association. TAP has produced reports on Aging and the Aged; The Employee; The Life Cycle; The International Scene; Frontier Technologies: Part One - Science and Health; Frontier Technologies: Part Two - Information Science; A Culture in Transformation: Toward A Different Societal Ethic; Transportation; Changing Residential Patterns and Housing; Planning; Death, Dying and Life Extension; and The Changing Nature of Work. TAP is useful as a model in that the screening function is carried out by over one hundred life insurance executives who monitor almost one hundred periodicals.[31]

Another major source of trends and assumptions information is the Work in American Institute, Inc., a nonprofit organization founded in 1975 to advance productivity and the quality of working life. The Institute's Studies in Productivity include reports on Mid-Career Perspectives: The Middle-Aged and Older Population; Productivity and The Quality of Working Life; Trends in Product Quality and Worker Attitude; Managerial Productivity; Worker Alienation; Human Patterns of Work; New Patterns of Work; Occupational Stress and Productivity;

Redesigning Work: A Strategy for Change; Jobs and the Environment; and Changing Attitudes Toward Work.[32]

Other major sources of trend and assumption information include Trends 2000 - New Challenges, New Needs, New Images: America in Transition;[33] priorities for future technology assessment;[34] Alternative Scenarios of the American Future;[35] The Exciting 80's: A Kiplinger Forecast for the Next Decade;[36] Productivity in the Changing World of the 1980's;[37] Science and Technology: Annual Report to the Congress;[38] the Surgeon General's report Healthy People;[39] professional association activities such as the AACJC 1979 Assembly on Lifelong Education and priorities for postsecondary occupational education as developed by the AACJC Council for Occupational Education; and national studies on topics relevant to our colleges such as Vocational Education and Training: Impact on Youth,[40] National Longitudinal Study of 1972,[41] Project Talent,[42] and The Planning Papers for the Vocational Education Study.[43]

The point of this array of sources of information is to provide a partial list of some of the sorts of things which will impact on postsecondary education in the eighties. Prior to the seventies, most leaders in business and education were able to plan the future by picking a trend and riding it. Basically, the data stayed constant long enough to do that. During the seventies, the number of variables increased faster than the number of constants. Some of these variables, such as the changing roles of women, are less easily quantified. Fifty percent of women with school-age children are now in the work force. When women enter the work force, their self-image changes drastically, and their desire for education goes up exponentially.[44] The societal revolutions of equal rights and equal educational opportunity has accessed to postsecondary education a wider range of human variability than at

any other time in history. This range will increase in the years ahead as some of the 40 million Americans pursue a career transition.[45] states send professionals back to the classroom,[46] colleges specify an agenda to respond to lifelong learning needs during adulthood,[47] and institutions begin to fill the missing link of connecting adult learners to learning resources.[48]

In a recent issue of Education Update, the AFL-CIO indicated that "one of the most pressing problems in labor education is to determine educational needs of union members."[49] At the first Business - Higher Education Forum conducted by the American Council on Education, it was concluded that "universities and colleges lack sensitivity to the product and manpower needs of industry and business."[50] Although a pioneering econometric study of productivity in the construction trades indicated union labor is more productive than nonunion workers, education and training to increase productivity may receive a lower priority in the eighties than retraining.[51] It is ironic that an industry claiming higher productivity for union labor than nonunion workers is facing a gloomy future.[52] The changing economic scene can be seen in the following newspaper headlines, "American Steel Industry Problems Due to Worsen," "Auto Sales Slump Worst in 5 Years," "For the Automobile, the End of the Road," "Giant Auto Plant to Close Far Earlier than Planned," "Government Can't Avert Layoffs," and "Plant Closing Leads to Suit,"[53]

Changes in the economy are linked directly to dislocations and unemployment which in turn are linked to health. The federal government has become relatively adept since World War II at assessing the linkages between fiscal and monetary policy and economic variables like unemployment. More recently, however, the impact of economic policy on

individual behavior has been studied. One researcher reports, "The 1.4 percent rise in unemployment during 1970 has cost our society nearly $7 billion in lost income due to illness and mortality, and in added state prison and mental hospital outlays. To this must be added public outlays of some $2.8 billion annually over the 1970 to 1975 period for jobless and welfare payments associated with the sustained 1.4 percent rise in unemployment."[54] Studies like this one provide support for the "right to work" revolution and consumer participation in governmental policy formation.[55] Periodic and systematic publicly-funded retraining of workers as an economic necessity could be a major challenge for industry, government, and higher education in the eighties.[56] The policy issues are complex in that a "Youth Program May Cut Adults' Job Prospects."[57] A study by the Worldwatch Institute indicates that "massive labor migration is a symptom of a world economy that is fundamentally askew, an economy in which gross income disparities both within and among countries persist."[58] These data provide ample reason to monitor the investment in research and development and its impact on the economy and occupational/technical education.[59]

A critical analysis of these data should yield some sort of the interaction of societal forces, trends, and their effect upon the institution or system and the segment of society it is to serve. These data can be displayed over a timeline and serve as a means for developing alternative scenarios and as a means for sharpening goals and objectives. The 1980s could be referred to as the Electronic Society or the Decade of Rapid Technological Change.

At North Central Technical College, assumptions were stated for each of the ten categories listed earlier in the document. Questions arose about the ten aggregate categories, specific items within categories,

THE DECADES OF RAPID TECHNOLOGICAL CHANGE

The Electronic Society

	1980	81	82	83	84	85	86	87	88	89	1990	2000
Business Technologies												
Data Processing	Word processing			Fiber optics			Electronic mail			Voice synthesizers		
	Microprocessing				Computer and artificial intelligence					Interactive computers		
		Computer graphics				Automatic dictating of voice to hard copy						
		National information banks			Automatic production lines							
Engineering Technologies												
Transportation					Two-way television							
		Smaller, more efficient automobiles								Rebuilding of mass transit-bus, rail		
Energy	Energy conservation				Shift in energy patterns-solar, nuclear fusion, biomass,							
		Synthetic fuel				Lasers		hydrogen, microwaves, aquifers				
		Toxic substance control			27.5 m.p.g.			Increase in industrial robots				
		Technological advances in monitoring						Conversion to metric system				
Health Technologies		Test tube babies				Long-range effect of manmade pollutants on health						Prolonged life
		Relationship between diet and disease						Health promotion			Cure for cancer	
	Chemotherapy	Cure for drug addiction						Cardiovascular disease-link basic science & health science				
	Alcohol related disorders			Artificial organs				Biopsychological manipulation				
		Major focus of research in biomedical and behavioral sciences										
Public Service Technologies			Government policy impact analysis									
		Advances in crime lab science										
							Programming for volunteers					
Revolution in Education	Access		Opportunities for handicapped			Cognitive style mapping				Memory drugs		
	Discs		Courses by newspaper				Microwave		Interactive TV and computer			
	Video tapes		Facilitators of learning				Communications satellites				Altered states of consciousness	
	Advances in CAI-CMI		Consortia		Cable TV			Education for each			Chemistry of learning	
Accountability		Guidelines		Government standards		Safety limits						
		National goals		Deregulation				Safety and health inspections				
				Increased regulatory action								
Finite Resources	Major changes based largely on ideas and processes launched during the 1970s, some poised now for an explosive burst of growth											
Change in Workplace	Increasing pronounced shift in American values - dignity and self-worth											
Technological		Increased use of robots				Job enrichment						
Attitudes/Values			Flex schedules					Humanistic environment				
	Meaningfulness of work				Job sharing							
		Changing structures			Human resource development (HRD)							
	Synchronizing training schedules with work schedules											

format and style, footnoting, glossary, and "valuing" each statement. In reference to format and style, it was decided that every effort should be made to keep the statement short but clear with additional information reserved for footnotes. It was felt that cross-referencing, footnotes, and a glossary provided meaning for the document and that an index should be developed. Each statement was reviewed for the purpose of classifying it as (1) opinion, (2) empirical, or (3) fact and for sorting it into an (a) institutional assumption, (b) cost-center assumption, or (c) institutional or cost-center goal or objective. Each department within the college then specified assumptions unique to it.

The process of specifying assumptions is to diagnosis as the derivation of goals is to development. That is to say, the specification of assumptions, from whatever source and for whatever frame of reference, yields a mind set about the discrepancy between "what is" and "what could be." The derivation of organizational and individual goals and objectives is the creative heart of the process to narrow the gap between the two positions. To assist in the goal setting process Ad Hoc Committees were established on (1) Program Flexibility, Student Retention, (3) Student Advising System, (4) Instructional Development, and (5) Load and Reward Structure. The collegial problem solving approach included the steps of (1) problem identification, (2) data gathering, (3) data analysis, (4) drawing conclusions, and (5) making recommendations. Committees were comprised of one representative each from Business, Engineering, Health, and Public Service Technologies and two representatives from student services staff; the Vice Presidents for Academic Affairs and Student Services served ex officio.

Each person brought to the committee fuzzy images of alternative

scenarios of the future as it related to each topical area. Fuzzy images of the future yielded to a course of action in terms of more specific goals and objectives spread across a time-frame and to which dollars were assigned. The process was fed through participation in a number of human resource professional development activities and events both on and off campus. These activities and events included (1) participation in the American Council on Testing National Seminars on College Student Retention and Academic Advising; (2) use of instructional diagnostic tools such as Instructional Development and Effectiveness Assessment; (3) workshops on cognitive style mapping and learning styles inventory; (4) study of materials about stages of adult development and a workshop on andragogy and contract learning; (5) extensive use of Performance Based Teacher Education Modules; and (6) instructor and supervisor training through Competency-Based Staff Development Workshops.

The following definition of goals and objectives was adopted.

> Goals and objectives are the foundation of the planning process, and it is vital for them to be clearly defined. Goals are defined as the desired end results over long periods of time (e.g. 3-10 years). Goals and objectives are often used interchangeably, but this is wrong. They differ in terms of their time frame, measurability and sequence. Goals are long run and the end result; objectives are short range and are steps in the direction of attaining a goal. Objectives are the measurable attainments or desired results over a short period of time (e.g., one year). Objectives are generally regarded as progressive steps toward a goal. Thus, a series of objectives should lead to one's goal. Goals must be established before objectives are specified.[60]

North Central Technical College also found it useful to develop a list of categories for setting goals and objectives (1) as a means for stimulating goals and objectives across a broad range of areas, (2) to provide a guide for similarity of goals and objectives for all depart-

ments within the college, and (3) as a framework for allocating dollars to goals and objectives across the college. The participants ultimately recommended seven aggregate categories of goals: (1) mission attainment; (2) functional relationships - articulation with secondary and higher education, business and industry, other agencies; (3) qualitative improvements in academic programs, student services, and institutional management; (4) programs in relation to educational needs based on market analysis and penetration of potential markets; (5) professional development of faculty, staff, and administration; (6) communications with the college's publics, and (7) pursuit of alternative funding sources.

The format for institutional goals and objectives consists of (1) the goal statement, (2) a paragraph to add clarity to the goal statement, and (3) a list of objectives. The example of human resource development has been chosen deliberately in order to help make the transition from the structural components of the planning process to the personnel development component.

PERSONNEL DEVELOPMENT

GOAL 5 It is the goal of NCTC to diagnose need for and design programs of appropriate development for college personnel.

DISCUSSION

Factors contributing to the need to conduct programs of professional development include (a) the rapid rate of change of technology, (b) the changing nature of clientele, (c) developmental stages of program and professional growth, (d) the need to reduce the overlap between competencies gained outside the NCTC context and the NCTC higher education experience, (e) differing abilities and preferences of student learning modalities and (f) recognition of the concept of lifelong learning. Instructional effectiveness and productivity includes dimensions of program flexibility such as granting academic credit for experiential learning, independent study/self-paced instruction, off campus instruction, modularization,

and contract learning. To conceive of our educational programs within a lifelong frame of reference with a "step in - step out" mode between the world of work and the world of education and to shift from a time-dependent curriculum format to a curriculum related to levels of competency in reference to designated bodies of knowledge and sets of skills is no less challenging than landing man on the moon and returning him safely to earth.

OBJECTIVES

1. To diagnose the need for professional development in areas of
   a. Discipline content, teaching strategies and testing methods
   b. Stages of development and means for assessing professional growth
   c. Assessing instructional competencies
   d. Planning and management skills

2. To develop professional development programs resulting from the diagnosis

3. To provide resources to reach professional development goals and objectives.

4. To set affirmative action goals and to monitor progress made on them

Departmental goals and objectives are arrayed across the seven aggregate categories. There is an interrelationship between and among the categories. For example, QUALITATIVE IMPROVEMENTS (Goal Category 3) in academic programs are arrayed under the sub-categories (1) curriculum content and content format, (2) alternative teaching strategies and techniques, (3) alternative ways for evaluating competencies, (4) minimum competency standards, and (5) interdisciplinary considerations. Setting of minimum competency standards for obtaining academic credit for experiences acquired outside the NCTC context has implications for FUNCTIONAL RELATIONSHIPS (Goal Category 2) with secondary school systems, business and industry, and articulation agreements with postsecondary education. Selection of alternative teaching strategies and techniques, such as computer assisted instruction, has implications for INTERDISCIPLINARY CONSIDERATIONS and PERSONNEL DEVELOPMENT (Goal Category 5).

Educational Testing Service has recently developed the Community College Goals Inventory (CCGI) to help community colleges define their educational goals, establish priorities among those goals, and give direction to their present and future planning. CCGI is an adaptation of the widely used Institutional Goals Inventory (IGI) and was developed in cooperation with AACJC and six community colleges. The format of CCGI is the same as that of IGI but the content and focus are intended to reflect the unique goals, concerns, and constituencies of community colleges. CCGI and IGI are a part of a set of ETS tools which include the Student Instructional Report (SIR), the Institutional Functioning Inventory (IFI), Student Reaction to College (SRC), and the Small College Goals Inventory (SCGI) developed in cooperation with the Council for the Advancement of Small Colleges through its Task Force on Goals and Climate.

The packet of planning assumptions and goals and objectives became the agenda of an all-day workshop by the Board of Trustees and the President's Cabinet on January 24, 1979. The packet and minutes of that workshop were distributed to all faculty and staff by memorandum on January 29, 1979. Meetings were held for faculty in each technology in early February. Each department within the college reviewed the goals and objectives stated the previous year and developed a refined set based on the packet of planning assumptions and the revised list of categories of goals and objectives. Nonpersonnel dollars were related to departmental goals and objectives. The Board of Trustees adopted a resolution endorsing the planning process on March 28, 1979. The packet of planning assumptions and institutional goals and objectives were reviewed by program advisory committee chair-

persons on March 5, 1979, and program advisory committees in health technologies on April 26, in engineering technologies on May 10, in public service technologies on May 17, and in business technologies on May 22.

The planning process was evaluated at a joint meeting of the President's Cabinet, Academic Council, Student Services Council, and Curriculum Coordinators on April 23. Recommendations resulting from that meeting included an annual planning/budgeting cycle beginning with a review of institutional assumptions and goals and objectives in the Fall Quarter, a review of departmental assumptions and goals and objectives in early Winter, and a review of fiscal resource allocations to goals and objectives in late Winter/early Spring.

On October 9, 1979, a joint meeting of the President's Cabinet, Academic Council, and Student Services Council was dedicated to a review of institutional goals and objectives and a discussion of strategies for achieving goals and objectives over a multi-year time-frame. This discussion on strategies was continued on November 9; the group was expanded to include curriculum coordinators. Paralleling this activity, a series of meetings was held between November 2 and December 3 with each technology during which the planning process was reviewed and faculty in each technology were asked to (1) review assumptions for the technology, (2) review and revise departmental goals and objectives, and (3) display objectives on a flow-chart.

Program development is a refinement of the goal setting process. Program is defined as follows:

> A set of education activities that, operating collectively, achieves a well-defined learning objective or set of objectives within a specified time frame. Programs can be viewed as having

> three formats (1) content format, (2) delivery system or packaging format, or (3) evaluation format. Content format is the way knowledge, skills, and attitudes are arrayed. Delivery system or packaging format refers to the methods the content is presented to learners. Evaluation format refers to the distinctive way of measuring student learning outcomes.

A program is developed for each goal labeled a high priority. This state of the planning process should yield a plan of action for each high priority goal. The plan of action should include specific objectives stated in the form of intended outcomes, a sequence of activities and events to lead from one point to another, and a time-line for reaching the goal. There should also be some plan for monitoring progress and evaluating the outcomes of the process of reaching the goal as well as the impact of the goal.

Little time shall be spent discussing certificate and associate degree programs brought on-line during the past several years. Such efforts are indigenous to an institution and unique to the environment of which it is a part. Suffice it to say that the graying of the nation, deinstitutionalization of persons, and rights to rehabilitation have implications for the human and public services programs. In the training function, technical education must be responsive to the <u>micro</u> definition of community. That is to say, it must be prepared to conduct short-term and associate degree programs that reflect the training needs of the college's service area. In the <u>proactive</u> mode of management, colleges must be sensitive to marketplace fluxuations that extend to a <u>macro</u> definition. For example, what effect would a real emergency on gas and oil imports have upon the economy of the college's service area? In addition to a primary energy source for running our agricultural/industrial complex, oil imports are a raw material for selected product lines such as plastics and fertilizers. Disruptions in the energy system

are related to practically every other system, particularly agriculture, steel, automotive, and transportation industries. This world's industrial nations subsist on imports, not just of oil and gas but of various basic commodities such as bauxite, chrome and platinum, most of which are Third World products. These interrelations will become increasingly more important in the 80's as Third World turbulence continues to grow and a global hunger crisis is likely over the next 20 years that may pose even greater problems than current energy woes.[61]

The purpose of this discussion, however, is not to focus on these macro connections between global problems and the whole of technical education. Rather, this discussion shall focus on selected examples of new program development which can be incorporated into the institutional planning process: (1) articulation and granting academic credit for life experience, (2) excellence and productivity, (3) community educational services and (4) planning and management development.

Technical education is oriented to train "middle manpower" which lies somewhere between the recognized professions on the one hand and the manual trades and crafts on the other.[62] The term subsumes a number of types of persons such as paraprofessional, semiprofessional, technician, foreman, middle management, engineering aide, and even some highly skilled crafts and trades. Educationally, the middle manpower occupations require education and training beyond high school but not to the level of the baccalaureate degree. In order to reduce or eliminate the possibility of duplication between secondary and postsecondary programming and to reorganize competencies of persons acquired through learning projects, postsecondary education must continue to specify procedures to credentialize such persons. In-service programs using materials[63] and consultants from the Council for the

Advancement of Experiential Learning (CAEL) can assist colleges with this objective.[64] Dallas County Community College District has developed detailed competency check lists for granting credit for experiential learning.

The increased involvement of business and industry in the education and training areas and recent research about adults engaged in learning projects tends to suggest that postsecondary education is not keeping pace with the needs of the learning society. Researchers, using the methodology of probing interviews, found an impressive amount of self-directed learning taking place outside of organized learning programs. A learning project was defined as a series of related episodes adding up to at least seven hours in which the person deliberately tries to gain certain knowledge or to develop a specific skill.[65] Learners have taught themselves about legal and counseling procedures, foreign countries in preparation for travel, small engine repair and procedures of wine-making. Teachers typically spend long hours in self-directed projects related to their teaching. Between 80 and 90 percent of the adult population conduct at least one learning project each year. The typical adult conducts five learning projects per year, spending about 100 hours on each project.[66] That adds up to an impressive 500 hours per year, or 10 hours per week, for the average adult learner. These data have tremendous implications for the market analysis, programming, and credentializing functions.[67] Certainly, there is great potential for Combining Career Development with Experiential Learning.[68]

A second program deals with excellence and productivity. The Resurgence of Occupational Education at a time of limited resources provides impetus for qualitative improvements and increased productivity.[70] Objectives can be specified for (1) curriculum content

and content formats, (2) matching teaching strategies with student learning styles,[71] (3) ways to evaluate student competencies, (4) setting minimum competency standards, (5) interdisciplinary considerations such as the interface between data processing and electronics, (6) advising and counseling students, (7) institutional committees, (8) program advisory committees, (9) public relations and image building functions, (10) developing functional relationships with the community, (11) professional development, (12) representing the college at state and national events, and (13) community service.

Areas in need of exploration to accomplish goals and objectives relating to qualitative improvements include use of mass media and the computer. The AACJC Task Force on the Uses of Mass Media for Learning reports on the production and use of telecourses and other mass media for community education.[72] The cost of such media, however, would be prohibitative for the two-thirds of the 1,234 two-year colleges with less than 2,000 enrollment and located primarily in rural areas. With regard to computers, a Congressional subcommittee has been told that "Despite the growing role of computers in higher education, they are not commonly used in the instruction of most students."[73] As a result of these findings, Rep. James H. Scheuer, a New York Democrat who chairs the Sub-Committee on Domestic and International Scientific Planning, Analysis, and Cooperation has introduced HR 4326 to establish a National Commission on the Scientific and Technological Implications of Information Technology in Education. Consortia are beginning to develop in the use of media and computers[79] and the costs and benefits of such arrangements are receiving the attention of the Council for Interinstitutional Leadership.[75] No consortial arrangement, however, can match the resources required to

produce the Courses by Newspaper on Death and Dying (Winter/Spring 1979), Connections: Technology and Change accompanied by the BC/Time Life Television Series on Connections (Fall 1979), and the CbN and AACJC production on Energy and the Way We Live.[76]

A third program deals with community educational services. Several documents describe the relationship between occupational programs and the community through advisory committees.[77] If society is to link more closely the world of work with the world of education, colleges must develop agendas that go far beyond the use of program advisory committees, technology program packaging formats such as co-op and episodic offering of credit and non-credit courses. Despite the increase in both credit and non-credit programs for adults which has been nothing short of spectacular in the seventies, so far the learning society has grown without any particular attention to planning. Thus, the first challenge to colleges will be to develop an agenda for selected mission priorities in broad aggregate categories such as career advancement, community development, and personal growth. An example of a comprehensive needs assessment and industrial climate audit to develop such an agenda was "presented at the National Clinic of the American Technical Education Association in 1978.[78]

A fourth program area relates to planning and management development. Some planning is a characteristic and pervasive behavior of all human beings and organizations; it is the hallmark of what we call rationality. If we were to draw a line to represent the possible range of ways an organization might make its decisions, one end of it could be called Ad Hoc and the other end Planned. In the Ad Hoc mode, decisions are made one-by-one according to the mood and judgment of

the decision maker(s), unrestrained by plan or even precedents. In the Planned mode, every decision is wholly constrained by a previously adopted plan. There are, in practice, few examples of these perfect extremes. Somewhere between these two extremes is where most organizations are in their planning.

What has been described in the preceeding paragraphs has a focus on the planning process, a function antecedent to management and evaluation and an integral component of a Planning, Management and Evaluation system.[79] That which is planned during one fiscal year will be managed (implemented and coordinated) during the next fiscal year. Evaluation will occur both during the years the processes of planning and managing takes place as well as during the following year. If an institution improves its planning-budgeting process in Year 1, a formative evaluation occurs that same year followed by a summative evaluation sometime later. During Year 2, an institution can improve its managing-budgeting process. A formative evaluation of the managing-budgeting process will be made during that year followed by a summative evaluation sometime later.[80]

In launching a comprehensive planning process, a college must make a commitment to the personnel development component to complement the structural components described in the preceeding paragraphs. The philosophy of a college in adopting a collegial, participatory mode of management is based on underlying assumptions such as (1) humans are the most important educational resource of the organization; (2) talents and skills of individuals within the organization must be cultivated systematically; (3) persons to be effected by plans and decisions should have a role in making them; (4) involvement in planning leads to a meaningful investment of time and a commitment on the

part of the participants; and (5) collaborative al setting represents a way of working toward solutions, rather than trying to escape from irreconcilable problems.

Organizations and individuals pass through various stages of growth and development. Stages of adult development received attention from Gould,[81] Chickering,[82] Levinson[83] and were popularized by Gail Sheehy in her book Passages.[84] These efforts were parallel by studies to match tasks, program responses and outcomes sought for the various stages;[85] a search to the key to each generation's prejudices, values, and ways of reacting to change;[86] career life planning;[87] professional development and obsolescence;[88] the dynamics of matching individual and organizational needs;[89] and direction for lifelong learning.[90] These studies have implications for the personnel development function in technical education.

Preprofessional preparation and professional continuing education is an extraordinarily complex task today. Most faculty were graduated from undergraduate and graduate programs which focused on service delivery as opposed to educator roles. These programs tended to concentrate on competence in relationship to performance of a role other than learning facilitator. These programs dealt minimally, if at all, with curriculum content formats, packaging formats, or learning outcomes evaluation formats. Nor did they concentrate on stages of adult development and distinctions between pedagogical and androgogical principles. Just as it is important for elementary school teachers to understand principles of human growth and development for the relatively homogeneous populations they serve, so too is it important for the professional educators in the postsecondary arena to understand the increasingly heterogeneous populations they serve.

Research indicates that differences do, in fact, exist among students.[91]

> Students 22 years of age and older clearly have counseling needs and instructional preferences that differ from those of college-age students. These conclusions were reached after a survey of 6,500 students in 27 diverse junior/community colleges. Among the major findings of the study were: (1) older students were less likely to experience academic problems than their college-age counterparts, tended to carry less heavy academic loads, and tended to be more motivated; (2) older students may need encouragement that higher aspirations are realistic; (3) program uncertainty seemed wide-spread among college-age students while only a few older students were uncertain about educational goals; (4) older students preferred student-centered instruction; (5) college-age students were the most likely to feel unchallenged by their classes while students over 30 were six times as likely as students under 22 to be satisfied with instruction; and (6) older students generally spend more time studying than college-age students. The growing numbers of older students appear certain to require increased emphasis on quality of instruction and new approaches to counseling, particularly to help students budget time and balance their on- and off-campus roles.

A mis-match between teaching style and learning preference does impact on learning outcomes:[92]

> ...dissonance within the teaching/learning interaction, like electrical resistance, lowers the efficiency of learning and eventually lowers the probability of student achievement. Certainly if instruction is designed to produce learning, educators will need to find ways to improve the match between the way instruction is delivered and the preferences of its clients... multiple path instruction must be developed with full recognition of the learners' identified cognitive and noncognitive factors.

Pat Cross suggests that society must shift from the 20th Century goal of "education for all" to the 21st Century goal of "education for each." Cross cautions, "a 21st Century goal of maximizing the impact of education on individuals is infinitely more complex and more demanding than our 20th Century goal of proving access for all..." Malcolm Knowles indicates that the challenge for postsecondary education is one of "a continued shift away from the knowledge and skill transmission model which we borrowed from traditional schooling toward a

competency-development model."[93] Diane Holt has indicated that the community college instructor of tomorrow needs "to develop a new set of skills, characterized as helping or facilitating, rather than transmitting."[94] These skills would include variations in styles of teaching to match learning preferences of the full array of students post-secondary education intends to serve.[95]

Traditional curricula impose constants of instruction, assignment, and time requirements; the achievement of students is the variable and most often reflected in grades "A" through "F". In addition, traditional curricula tend to emphasize as the primary measures of the outcome of the learning experience the accumulation of factual information as opposed to what a person can do in terms of performance or the impact a student can have as a result of particular actions - consequences. In the competency-based format, the constant is student achievement while instruction, assignment, and time are independent variables. The amount of effort dedicated to the design and implementation of competency-based curricula is impressive, as is the extent and variety of approaches which are being taken. It would appear, however, that technical education is still in the early stages of making this transition.

The message that is central to this discussion, however, is that college personnel are passing through various stages of career development. This is true for faculty, staff, and administration. Just as organizations need a diagnostic-developmental system to grow to full maturity, so too, individuals need a diagnostic-developmental system to assist them to understand themselves in the formation and revision of personal/professional goals and ways for achieving them. If life-long learning is to progress from an idea to a full-blown operational reality, it would appear that professional educators should lead the

way. It would also appear incontrovertible that maximum syngerism is achieved when individual diagnostic/development systems are in harmony and synchronization with the organizational diagnostic/development system. Several institutions have made some progress on this concept through personal growth contracts. The NCTC efforts with individual development plans would confirm this hypothesis.[96]

As the pace of technological change accelerates, no education will last a lifetime. The linear life plan which had been divided into three full-time phases of education for the young, work for the middle-aged, and enforced leisure for the elderly is yielding to a blended life plan that permits learning, work, and leisure to go on concurrently. Our institutional planning processes and personnel policies must incorporate such flexibility for students and college personnel.

Any presentation on "Planning Technical Education for the Eighties" must ultimately move from the what and how to include some comments about who. As I was working on this section of the presentation, I was reminded of the two first graders who, at recess, observed a jet flying overhead. The two youngsters soon became involved in a discussion of the design of the craft, the speed of the plane, the thrust of its engines, its maneuverability in combat, and advantages and disadvantages over other aircraft. At the end of the recess a bell rang and the one youngster looked at the other and said, "Well, it's time to go back and string those damn beads."

An article in The Chronicle of Higher Education was entitled "Where Are the Leaders in Higher Education?" The author alleges that the modern collegial context has caused the disappearance of the stateman leader in preference to the institutional manager.[97] The

Carnegie Council report Giving Youth a Better Chance: Options for Education, Work and Service expresses concern in another way.[98] The Council alleges that the educational system has contributed to the development of two distinct social classes in America, an educated class and an undereducated class. The emphasis of the educational system on helping college students and high school students bound for college has pushed further down the ladder those who are left out. Millions of young persons have benefitted over the past couple of decades from government support of higher education. But millions more have found education to be an alienating experience. According to the Carnegie study, the high school national drop-out rate is 23 percent. Of those who do manage to graduate, one-fifth lack basic reading and math skills. One 20-year-old person attempted to sue the city of New York for $3 million saying that after 11 years of city-supervised care and education, he could neither read nor write.[99] While the government has been spending $1,940 on each low-income college student, only $339 has been spent to help each high school drop-out. The Council believes this neglect of approximately one-third of American youths is partly responsible for many major social problems, including juvenile delinquency, violence and vandalism, high youth unemployment, and the growing number of Americans dependent upon government welfare.

What this suggests is that we must balance our efforts between "stringing those damn beads" and statesmen like leadership in policy development. What is our error of ommission in dollar costs to society for an inadequate education? A report published by the United States Senate entitled The Cost to the Nation of Inadequate Education; The Effects of Dropping Out concludes that the failure

to attain a minimum of high school completion among the population of males 25-34 years of age in 1969 was estimated to cost the Nation (a) $237 billion in income over the lifetime of these men and (b) $71 billion in foregone government revenues of which $47 billion would have been added to the Federal Treasury and $24 billion to the coffers of State and local government.[100] In contrast, the probable costs of having provided a minimum of high school completion for this group of men was estimated to be about $40 billion. Thus, the sacrifice in national income from inadequate education among 25-34 year-old males was about $200 billion greater than the investment required to alleviate this condition. The cost to this Nation in terms of welfare, crime, reduced political participation, incidence of disease, individuality, self-confidence, pride, etc. go far beyond any monetary estimate.

In support of the investment in postsecondary education, Howard R. Bowen in Investment in Learning presents the most comprehensive data available about the benefits of college for individuals and the returns to society in general.[101] He offers detailed and documented evidence about the benefits of going to college. He finds that higher education significantly raises the level of knowledge and the cognitive powers of students; increases personal self-discovery and psychological well-being; enhances traits such as adaptability; positively affects earning ability; and contributes to greater interest in politics and community affairs. Bowen shows that college-educated people are more careful in child raising, more efficient consumers, better users of leisure time, and healthier. He reports evidence that college produces more responsible citizens and provides professional leaders who improve social conditions. In addition to the value

accrued from higher education's primary function (that of teaching) Bowen shows that the two other functions of research and public service also lead to major social benefits, including conservation of our cultural heritage and advancement of technology. He concludes that the monetary returns from higher education alone are worth the cost, that the non-monetary and intangible returns to society are even more valuable, and that the cumulative benefits of all three college and university functions exceed the cost by several fold.

North Central Technical College was involved in a project to retrain the unemployed in Richland County. Laudable and necessary as the project was, it represented a rehabilitation model as opposed to a prevention model. The intervention strategy was the result of a crisis as opposed to a process designed to diagnose a potential problem and prevent the development of the malady. Nor was it a secondary prevention model, that of identification of an illness at an early stage in order to prevent its complication. The intervention occurred only after the crisis struck the fatal blow even though early warning signals had been transmitted over the past several years.

Currently several postsecondary institutions are conducting programs for displaced homemakers. A displaced homemaker is a person, usually a woman, who has been depending upon a spouse for the family income and faces a life transition that is emotionally and economically immobilizing. The Alliance for Displaced Homemakers estimates that between 2 million and 3 million women are displaced homemakers.[102] Based on 1976 data, the Women's Bureau of the U.S. Department of Labor estimates the number of displaced homemakers to be over 4 million.[103] As of May 1979, the number of displaced homemakers in this country was estimated to be between 4 and 6 million.[104] Studies indicate that displaced homemakers suffer severe shortcomings in the

qualifications necessary for securing employment. Eliason has stated, "The core of the problem is the lack of marketable skills."[105] Indiana and Ohio have undertaken studies to determine the needs of displaced homemakers and to chart a course of action.[106]

Contrast these rehabilitative models with a prevention model present at the annual convention of the American Association of Community and Junior Colleges on May 1, 1979. The Department of Economic and Community Development in South Carolina has 18 full-time employees working directly with business and industry in an effort to diagnose training needs and develop training programs which are funded by DECD for up to two years duration. This project is a part of that Sunbelt state's marketing effort to lure industry to South Carolina. The contrasts of these models reflect major policy decisions that are the outgrowth of changes in societal trends and alternative responses to them. Leadership in postsecondary institutions must play a larger role in <u>policy development</u> if we are to impact on some of society's compelling problems and regain the public confidence of past years.

Although no one is expected to comprehend the totality of the $5.2 billion provided for several agencies included in the Department of Health, Education, and Welfare through the end of fiscal year 1980 under H J RES 440, it is absolutely essential that technical education leadership understand what is happening to vocational/technical education, particularly since most of the funds are to be transferred during this year to the Department of Education which was approved in October of 1979.

In recent years, the Congress has tended to create new programs to impact major social and economic concerns rather than improving

delivery systems already in place. Many persons are calling for closer coordination among the array of programs dealing with vocational education, training, and employment. Such could be the case in the Youth Employment and Demonstration Projects Act of 1977 (A title under the Comprehensive Employment and Training Act) which is subject to reauthorization in 1980 and the Vocational Education Amendments of 1976 which will expire in 1981.

As vocational education has grown in importance, several educational associations and public interest groups will be actively involved in seeking to influence the nature of the vocational reauthorization. According to the American Vocational Association, the worst of all possible worlds for vocational education and its benefactors would be a host of educational and public interest groups descending upon Congress with separate and different points of view. AVA contends that such a situation is likely to produce the least desirable type of legislation that would reflect a series of compromises hammered out against the self-interest framework of different groups rather than examine this nation's needs and logically developing legislation that would enable vocational education to make its maximum contribution in addressing appropriate national concerns.

Therefore, AVA developed a legislative study plan consisting of six components: (1) formulating legislative recommendations, (2) obtaining membership input, (3) obtaining external input and feedback, (4) educating membership to issues and policy alternatives, (5) expanding and activitating legislation networks, and (6) coordination and communications. Formulating legislative recommendations will emphasize (A) examination of the status and need for vocational education, (B) policy statements for federal vocational

education legislation, and (C) examination of the most appropriate national program structure for vocational education legislation including (a) basic state grant programs, (b) programs of state and national improvement, (c) planning and evaluation, (d) financing, (e) administration, and (f) consumer and homemaking.

The AVA legislative study design was sent to state vocational associations on February 23, 1979 and regional meetings to conduct legislative hearings were held from March 16 through June 16. First drafts of position statements were presented at the 1979 AVA Convention and articles appear in the journal of AVA beginning October 1979.

During recent months, vocational education has come under a series of attacks. The criticism provides stimulation to review three national studies: Vocational Education and Training: Impact on Youth, National Longitudinal Study of 1972, and Project Talent. In addition, the Education Amendments of 1976 (P.L. 94-482) require the National Institute of Education to transmit to the President and the Congress a study and evaluation of vocational education, the first of which is The Planning Papers for the Vocational Educational Study, Vocational Education Study Publication No. 1. Leadership in technical education must be active participants in policy formulation in this special area of interest.

An understanding of the policy process, as well as technical knowledge of substantive policy areas, is required of persons who work in the public sector or seek to influence policy decisions. This requires a framework for translating social and scientific knowledge into public decisions and for understanding the impacts of governmental policy.[107] It requires a capacity to search out and appraise evidence from a variety of sources, to think critically

about policy issues and policy proposals, and to make sophisticated use of key theories, findings, and analysis which have been useful in policy formulation.

There are hundreds of commissions, committees, and task forces at work analyzing societal problems and submitting recommendations about courses of action. It is important to keep tabs on how commission members, feds, congressmen, and other policy makers size things up. We need to know their insights, perceptions, moods, and hunches. What they are thinking will affect what they will do. We need to go beyond the passive approach of keeping tabs on their thoughts, however, and be proactive in terms of legislator education. Throughout this nation, 7,565 persons serve the 50 states as elected legislators.[108] For the most part, they are citizen legislators who work most-time at various trades and professions in their home communities and part-time as law makers in state capitals. It is impossible for them to be knowledgeable about all issues without systematic cultivation. Their continuing education cannot be left to chance alone.

Within the United States there is at least one two-year college in each of 426 of the 435 Congressional districts. There are approximately 540 boards which are locally appointed or elected to govern two-year public colleges; in 17 states complete legal responsibility for the governance of public two-year colleges rests with a state-level board rather than a local governing board.[109] It is a difficult task to relate the world of education to all policy areas such as health, energy, unemployment, and transportation. It is an equally complex task to attempt to have diverse governance structures and the profession speak with a voice reasonably close to consensus when

dealing with policy issues such as the federal role in vocational education, investment in research and development, or international education. Unrelated as these policy areas may seem, there is a connection. Richard C. Atkinson, Director of the National Science Foundation, remarked in recent testimony before Congress, "For modern industrial societies the long-range investment in science and technology through support of basic research is imperative and a capital investment in the national future."[110] The exporting of technology and technical education know-how to Third World countries could very well be the factor which maintains global stability.[111]

Professional education leadership should not underestimate the challenge presented in the disenchantment with postsecondary education left over from the 1960's in dealing with policy development and legislator education. Kingman Brewster, former President of Yale, said something of fundamental importance in an appearance on Meet the Press in December 1969. He said, "I think what we do to them or for them during the coming decade is going to have probably more to do with what kind of country we end up with than anything else."[112] Time has demonstrated he was right. "The 1970's brought a profound change in American politics with broad shifts in the way the nation elects its leaders. The imperial presidency ascended and fell amid the Vietnam War and the scandal of Watergate. The old 'big money' was eliminated from politics, but a new breed of 'fat cat' took its place--special interest groups with high-powered lobbyists and bulging campaign funds."[113] Because more than half of voting age Americans have grown up since the Great Depression, their economic views are different. The new generation of educated persons is making sweeping demands of the institutions they come in contact with.

The public and its elected officials, blaming postsecondary education for the oversupply of graduates in selected fields, may choose to vent its dissatisfaction on all of the system. One note of concern in this area, however, is that only 39 percent of Americans old enough to vote visited the polls in 1978.

Among the special interest groups and high-powered lobbyists is the AFL-CIO. The AFL-CIO, under new leadership hoping to reunify all labor under one roof, monitors legislation closely. As a member of the Coalition of Adult Education Organizations, it joined in submitting a statement to the Transition Team in change of organizing the Department of Education. The statement specifically calls for clear commitment to the needs of adult learners built directly into the Office of the Secretary or the Under Secretary with a stated responsibility for coordination of and dissemination of information of all department programs involving adult learners. Among other requests, the Coalition would like to see qualified professionals in each major area with experience in the field of education. In addition, the statement asks that the needs of adult learners be recognized when the research agenda is planned.[114] Because of the federal government's role in employment and unemployment,[115] technical education leadership should not underestimate the influence of the 81.3 million persons in the labor force, 26.5 percent belonging to labor unions.[116]

Another challenge of leadership in the 1980's will relate to strategic planning at the College's service area level. Earlier in this document, it was emphasized that broad-based strategic and tactical system-wide and institutional planning is largely a phenomenon of the seventies. Although some progress has been made in strategic planning, it is largely restricted to within and between

institutions of higher education.[117]

In 1973, Dr. Edmund J. Gleazer, Jr., President of the American Association of Community and Junior Colleges, made the following statement:

> The community college that defines itself as a community-based, performance-based, postsecondary institution will have four basic continuing objectives:
>
> 1. Current, accurate, and comprehensive information about the community and how the institution is serving its community.
> 2. Access to information that enables the college to develop its human resources consistent with national needs and trends.
> 3. A comprehensive plan expressed in terms that can be understood and supported by the community.
> 4. The ability to justify its need for resources and to demonstrate that they have been used effectively.

At the 1978 convention of the AACJC, Dr. Gleazer stated:[118]

> A new and vital mission is forming for the community college. That new mission, new not in direction, but in the extent of expression, views the community college as a central agent in organized community systems for lifelong education. We may be close to a breakthrough in lifelong education with the community college playing a key role. There is plenty of evidence that a groundswell of a variety of factors is forming capable of even greater effect on the teaching-learning clientele and patterns of this country than the GI Bill of the Forties and the community college explosion of the Sixties. In fact, both of these eopchs have contributed to the force of this gathering wave. Obviously, what we are becoming aware of and beginning to experience results from is the maturing conviction that during his lifetime every American has an entitlement to appropriate education.

More recently Change magazine reported in a two-day colloquim on the topic "Education and Work: Two Worlds or One?"[119] Harold Taylor argues that "What is missing...in the boardroom discussions of trustees and college presidents...is a renewed sense of the mission of the American college as an instrument of social change. The community college is now at the front edge of social change in the big cities, where it is politically clear that community education

which matches the reality of community needs is a major source of strength in building the community itself. Under the right circumstances the community college can create employment by developing citizens who are employable."[120]

In 1967, the editor of Daedalus, published a paper called "University Cities in the Year 2000."[121] Essentially he was suggesting that by the turn of the 21st Century, certain municipalities would be primarily "educational," in the broadest sense, just as certain cities are primarily "textile," "transportation," etc., in today's world. What he suggested is a consortium of ideas and programs that goes beyond the parochial view of "institution." When we get rid of the illusion that "higher education" is the exclusive domain of colleges, then we can ask a new set of questions about exciting terrain. For example, is it possible to conceive of a network of different organizations collaborating on region-wide programs on (1) career planning and development, (2) health promotion, or (3) the revolution in communications technology?

During the late 1960's and the 1970's, a number of municipalities participated in a process to establish and implement communal or state-wide goals. In an article in the March-April 1971 issue of City, Frederick B. Routh indicated that some 100 cities and three state governments had launched such an effort.[123] The first and largest of the major goals programs was that of Dallas, under way for nearly six years by 1971. This effort yielded a set of goals and subgoals in (1) the number of academic and career counselors employed by the Dallas Independent School District; (2) expansion of the Dallas County Junior College System and the Tarrant County Junior College System; and (3) use of television, radio, and other

technology to assist all forms of continuing education. That process continues today. The 1978 gift of the Dallas Foundation to Goals for Dallas was designated to support the publication Achieving the Goals for Dallas, 1978-83.[123] This sort of strategic planning is in the early stages of development and will undoubtedly continue in the 1980s. In addition, the concept will probably be extended to third World countries.

Another challenge of providing leadership in the 1980s deals with executive and board development. This document refers to the rapid rate of change of technology including that technology to manage postsecondary education, both the structural and personnel development components, at the institutional and systeme-wide levels. Professional preparation and professional continuing education of top level administrators and board members is even more complex than that described for other college personnel, for it is they who have the ultimate responsibility for charting the scope of work and course of action for the institution or system.

Reference was made earlier to Connections: Technology and Change. In the first program of the Connections series, James Burke indicates that the use and understanding of technology do not necessarily go together. Burke's basic thesis "is that change occurs as a result of many factors, but only under certain conditions. The most important is that a 'technological infrastructure' must exist. The Egyptians could not have invented the plow if they had not known how to work with wood or domesticate animals. Second, for the technological change to take hold, be used, and have an effect, there must be a need for it. Pots were not made before there was a surplus of something that people wanted to keep."[124]

Leaders in technical education have the responsibility in providing the infrastructure not only in the application of technology to the learning process but also within the technology areas over extended periods of time. The Office of Technology Assessment on "Technology and Education" states,[125]

> The lessons of experience should be brought to bear on the new opportunities presented by cable, microwave, communications satellites, information packaging, video discs, and many other new developments.
>
> Education, using such technologies, may move from a parochial local level to a national, continental, and global level. The potential U.S. role as a unilateral, bilateral, and international participant in these new technological possibilities should be assessed.

In Future Developments In Telecommunications, James Martin states,[126]

> Communications technology is in a period of revolutionary change. Few technologies could have as profound an effect on the human condition as the full development of these inventions, and certainly additional inventions in telecommunications are yet to come, some perhaps of even greater impact.

In Closing the Gap Between Technology and Application, Peter Roll states,[127]

> We are standing on the threshold of a new generation of computing applications that will be at least as significant to higher education -- and at least as much of a change -- as were the operating systems of the so-called second generation and time sharing, remote access, and multi-programming that came with the third generation of computers.

If leaders in technical education are to provide the infrastructure of applications of technology to the learning process and also of technology areas,[128] leadership development programs must be designed by state and professional associations to assist in meeting the challenge of the 1980s. These programs should include sessions described above as well as stages of data processing growth,[129] how to increase productivity and improve quality, end how to keep technical education viable in the decades ahead. These programs must also include

sessions on planning processes that shift from the expansion mode to one of reduced scale in a variety of contexts. As several authors suggest, the three "R's" of the eighties could be reduction, reallocation, and retrenchment.[130] Collaborative arrangements through consortia and alliances hold the potential for addressing some of these issues. The National Alliance of Postsecondary Education Institutions and the League for Innovation in the Community College are examples of cooperative efforts designed to address select problems.

The future of postsecondary technical education, then, rests on the degree to which it meets the needs of the society in which it exists. As society changes, so must postsecondary technical education change. The way in which a specific college meets the challenge of being responsive to societal needs is a function, for the most part, of its sophistication in planning; comprehensive and systematic, strategic long-range and operational short-range. As critical as institutional planning is to a college's survival, however, only a very small number "have effectively developed a plan, based on sound data about themselves and their setting, which is revised at least annually and upon which the institution's leadership acts daily."[131] The planning process must consider contemporary ways to apply existing knowledge to the most critical of society's current and emerging problems.Several key questions seem appropriate to guide us in the eighties. Are we preparing for unexpected shifts in the labor market? Do we recognize societal forces, trends, and their effects? Where are we in the developmental history of educational technology? What opportunities in advancing education and training through technology will we be seizing in the 1980s? What are the key decisions that must be made about technology-based instruction? What are the alternative

scenarios for technical education for the eighties? What is the "scope of work" for technical education for a single institution or the system as a whole? How shall this grand design be financed? Who shall provide the leadership? How will the professional associations contribute to clarifying the scope of work and charting a course of action? I don't know the answer to any of these questions. The Carnegie Commission suggests there are Three Thousand Futures. One thing, however, seems clear. Whatever our course of action, Machiavelli's words of caution seem most appropriate:

> There is nothing more difficult to take in hand, more perilous to conduct, or more uncertain in its success than to take the lead in the introduction of a new order of things, because the innovator has for enemies all those who have done well under the old conditions, and lukewarm defenders in those who may do well under the new.
>
> .....the Prince

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